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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS :	Moens et al.		
SERIAL NUMBER :	10/544,116	EXAMINER :	Gregory Listvoyb
FILING DATE :	October 4, 2005	ART UNIT :	1796
FOR :	THERMOSETTING POWDER COMPOSITIONS FOR COATINGS		

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DECLARATION OF LUC MOENS UNDER 37 CFR 1.132

I, Luc MOENS, declare and state that:

1. I am an inventor of the above-referenced application and I have read the Office Actions dated May 7, 2009 & January 4, 2010 in conjunction with the cited references (of which one is my own), and I understand that claims 1-41 are rejected under 35 U.S.C. § 102(b) as anticipated by Moens et al. (WO 98/18862) ("Moens"), and that claims 1-41 and new claim 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaplan et al. (US 5889126) ("Kaplan") in view of Moens. Additionally, I have reviewed the Panel Decision dated May 12, 2010 and the amendment and reply accompanying this paper.

2. The claims as amended overcome the rejection under 35 USC § 102, as detailed in the reply. I wish to submit the following comments to rebut the Examiner's assertions with regard to the rejections under 35 USC § 103, with which I do not agree. The Examiner asserts that as of the date of invention, it would have been obvious to one of ordinary skill in the art to use the amorphous polymer taught by Moens in the applications taught by

Kaplan in order to achieve good mechanical properties and excellent weatherability of coatings. *See* final Office Action of 01/04/10 at p. 8.

3. Claim 29 has been amended herein to incorporate the limitations of claim 42. Accordingly, claim 29 as amended recites a powdered thermosetting composition having a) a carboxyl functional amorphous polyester having an acid number from 12 to 34 mg KOH/g, wherein the polyester is prepared from:

i) a polyacid constituent comprising from 81 to 100% mole of isophthalic acid (IPA); and

ii) a polyol constituent comprising from 15 to 65% mole of one or more linear chain aliphatic C_4-C_{16} diol, and from 35 to 85% mole of neopentyl glycol (NPG); and

b) a cross-linking agent comprising at least two β-hydroxyalkylamide groups, wherein said powdered thermosetting composition does not contain semi-crystalline polyesters; wherein the polyester is from 50 to 98 weight % of the total; and wherein the β-hydroxyalkylamide cross-linking agent is from 1 to 10 weight % of the total.

4. It was generally known as of the date of invention that isophthalic acid rich polyesters result in powder coatings that have outstanding outdoor durability, yet poor flexibility. By comparison, powders composed of terephthalic acid rich polyesters and various polyols have good flexibility, but do not score so well on the visual aspect (Orange Peel). *See* Applicants' specification as US Publication No. 2006/0217520 at paragraphs [0074]-[0077] and Example 15 of Table 2. Furthermore, powders composed purely of isophthalic acid and e.g. neopentylglycol have problems with orange peel and lack flexibility as measured by direct and reverse impact strength. *See id.*, Example 16 of Table 2.

5. As indicated by the instant specification, a primary discovery of Applicants' invention is that coating flexibility can be obtained for an isophthalic acid rich polyester when the polyester incorporates a specific selection of polyols. *See* Applicants' specification as US

Publication No. 2006/0217520, paragraphs [0017]-[0018]. Additionally, when the isophthalic acid rich polyester is formulated with a β-hydroxyalkylamide hardener, outstanding degassing properties are also obtained. *See id.* Thus, the instant application and claimed invention teach the particular formulation required for an isophthalic acid rich polyester having: i) outstanding degassing properties, ii) outstanding weatherability, and iii) improved flexibility. *See id.* at paragraph [0084] and claim 29 as amended.

6. The combination of Kaplan and Moens, however, does not lead to the claimed invention. For instance, Kaplan does not teach or suggest the claimed ratio of the carboxyl functional amorphous polyester versus the cross-linking agent comprising at least two β-hydroxyalkylamide groups. In Example 4 of Kaplan, the amount of the cross-linking agent is above 10 weight %. In example 4 the carboxyl functional polyester is rich in terephthalic acid. Examples 5-6 do not relate to powder compositions as they are water or solvent based.

7. Moreover, Moens does not cure these deficiencies of Kaplan. In fact, reliance on Moens to complete the teachings of Kaplan ignores the fact that, viewed as a whole, Moens requires a polyester composition having both an amorphous polyester and a semi-crystalline polyester (which is specifically excluded by the claimed invention). Reliance on Moens further ignores the fact that the reference specifically discourages the use of isophthalic acid-rich amorphous polyester compositions for use in powder coatings (such as that of the claimed invention) due to their "medicare [sic, mediocre] mechanical properties," such as flexibility *See* Moens, col. 19, lines 10-16.

8. Thus, Moens teaches away from the use of only amorphous carboxyl functional polyesters, which follows from a comparison between Examples 31 and 32 of Moens (column 19 and Table 2). The Examiner is appreciated to note the highly significant difference in reverse and direct impact between Examples 31 and 32 of Moens (< 10 kg/cm, using no linear chain aliphatic C4-C16 diols) vs. Examples 7-14 of the instant specification (> 60 kg/cm, using one or more linear chain aliphatic C4-C16 diols).

9. The present invention provides for coating compositions with outstanding flow, no pinholes and this in combination with an excellent reverse and direct impact (> 60 kg.cm), with the use of simple β-hydroxyalkylamide molecules and without the need for semi-crystalline polyesters. Such a composition could not be expected in view of the teachings of Kaplan and Moens.

10. The β-hydroxyalkylamide of Kaplan is of a very particular type: it is a specifically designed co-polyester having hydroxyalkylamide end groups, with a MW of e.g. 300-15,000. The present invention, at the contrary, allows the use of standard commercially available β-hydroxyalkylamides like Primid, which are simple, small molecules.

11. Furthermore, the Examiner's assertion that tere- and iso-phthalic acid can be used interchangeably (*see* final Office Action of 01/04/10 at p. 9) is a factual error. While powder coatings can contain amorphous polyester compositions having both tere- and iso-phthalic acid, prior to the present invention those powder coatings rich in isophthalic acid provided excellent outdoor durability, but poor flexibility. Conversely, those powder coatings rich in terephthalic acid provided better flexibility, but less good visual performance. Up until the time of Applicants' invention it was believed that powder coatings having good flexibility were only achievable by use of terephthalic-rich polyester, or an isophthalic-rich polyester with the addition of a semi-crystalline polyester and a high amount (85% mol or greater) of a cyclic C4-C16 diol (e.g., 1,4-cyclohexanediol). *See* Moens, col. 3, lines 55-61; col. 4, lines 55-61; and col. 19, lines 10-13; *see also* Comparative Examples 31-32.

12. Applicants' invention disproves this notion and their results are thus unexpected in view of the cited art.

13. Accordingly, in view of the foregoing remarks and comparative data it is my opinion that the combination of Kaplan and Moens is improper, and that claims 29-41 as presented

herewith are non-obvious. Therefore, it is requested that the Examiner withdraw the rejection under 35 USC § 103.

14. I further declare that all statements made herein of my own knowledge are true, and that all statements on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Respectfully submitted,

Sept 13, 2010

Date

Luc MOENS